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Aerospac. Rescue and Recovery Service (ARRS)
(S) ARS Rpt, Use of HH-53B & HH-16 Aircraft for Combat Rescue
Rescue/Recovery Mission in Republic of Viet Nam
17 Jan 64

MIR

Date

PROJECT C. UNA HARVEST
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No. 0006430

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HH-43 and HU-16

Operations in SEA

PROJECT CORONA HARVEST

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HEADQUARTERS

AIR RESCUE SERVICE (MATS)
United States Air Force
Orlando Air Force Base, Florida

27 JAN 1964

A8000

(3) Use of HH-43B and HU-16 Aircraft for Combat Aircrew Rescue/ Recovery Mission in Republic of Viet Nam

MAT3

1. (U) References:

- a. Headquarters ARS letter (ANLDC), 25 October 1963, subject: (U) ARS Area Rescue/Recovery Force Requirements.
- b. Headquarters PACAF letter (PFODC), (S), 28 October 1963, subject: (U) Requirement for an Aircrew Recovery Vehicle in the Pacific Command.
- c. Headquarters ARS letter (ANCCO), (C), 18 November 1963, subject: (C) Critical Requirement for MATS Professional Air Rescue Forces in RVN.
- d. PACAF message (A) (PFODC) 1-2000, 26 December 1963.
- e. Headquarters ARS message (S) (ANCCO) 346-M, 31 December 1963.
- f. PACAF message (S) (PFODC) 1-035, 9 January 1964.

2. (S) Purpose: To present information resulting from a study made by this headquarters concerning the feasibility of employing AHS H-43 and HU-16 aircraft in support of the rescue/recovery mission in the Republic of Viet Nam (RVN) and to request certain actions.

3. (b) General: A definite requirement exists for professionally qualified Combat Aircrew Rescue/Recovery forces in the NVN due to the following reasons: a high combat sortie rate, high density traffic, extensive intra-theater airlift of personnel, adverse weather conditions, and the resulting number of SAR missions experienced. The requirement is definitely a responsibility of the USAF under AFR 95-7(c), 'Wartime Search and Rescue (SAR),' and AHS considers it a mission of first priority today. Although HH-3C helicopters are required to accomplish the total mission and have been urgently requested (see Reference a), AHS action with present equipment is definitely needed now.

4. (5) Concept of Operations (Reference Tab A): Deploy sixteen ~~UH-1H~~ helicopters and three ~~UH-1H~~ aircraft to the following:

MR: This proposal is a result of references plus the Commander's desires after observations he made on a recent visit to Pacific AHS units.

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locations: four (4) each helicopters to Bien Hoa, Can Tho, Da Nang, and Pleiku, and three (3) HH-16 aircraft to Nha Trang. The primary helicopter mission will be Combat Aircrew Rescue/Recovery and a secondary mission will be Local Base Rescue. Helicopter forces will be deployed PCS from USAF resources. The HH-16 aircraft will deploy from the 31st and 33d Air Rescue Squadrons on a rotational plan and will provide area search and on-scene commander capability. Para-rescue personnel will be employed with both type aircraft.

5. (S) Capabilities, Limitations, and Modification Requirements of the HH-16 Helicopter (Reference Tab D):

a. Operational capabilities which are outstanding in the HH-16 are high pay load limits and excellent hovering performance at high density altitudes.

b. Inherent limitations are found in the relatively low top speed of 105 knots, the vulnerability of the blade flaps and control rods to ground fire and heavy precipitation, and lack of twin engine reliability.

c. Mandatory modification requirements prior to deployment to RVN:

(1) Install self-sealing fuel tanks to include an extended range tank.

(2) Install HH-4 attitude indicator (or equivalent) for improved instrument flying capability.

(3) Provide flak curtains for protection of the crew.

(4) Modify the hoist winch to accommodate a 400 to 450 foot cable.

(5) Modify blade flaps to withstand flight through heavy precipitation.

(6) Install VHS-101 AM and ARC-44 FM radios. (TAB D.)

NOTE: Kaman Aircraft Corporation has indicated their capability to accomplish modifications at the factory within a reasonable period.

6. (S) Operations/Training (Reference Tab E):

a. HH-16 helicopters will normally be dispatched in pairs, one to act as cover and backup for the other. One helicopter will also

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recover the other helicopter crew and recovered personnel should it be forced down. Specific location of downed aircrews will be determined by other aircraft, or from intelligence and operational sources, prior to deploying HH-43B helicopters. Routes to and from the pickup point will be irregular and evasive, avoiding all known firing capability of hostile forces. Altitudes above known enemy firepower will be maintained en route. Fighter aircraft coverage will be provided helicopter flights. Approaches and departures at both the pickup point and at operating bases will be at maximum rates including evasive action spiral maneuvers. All crew members will be proficient in delivering 'heads-down' firepower with hand-held automatic rifles.

b. The present high proficiency level of AR aircrews and support personnel indicates a minimum of additional required training to include combat operations techniques, intensive instrument flying, small arms firing, and escape and evasion training. Training can be accomplished during the time aircraft are being modified.

7. (S) Communications (Reference Tab D): In order for the HH-43B helicopter to perform an unrestricted combat recovery mission in Viet Nam, it must be modified with VHF/HF, and VHF/FM. The HH-16 aircraft must be modified with VHF/FM. Installation of IFF in HH-43B helicopters should be predicated on tactical requirements.

8. (U) Logistics (Reference Tab E):

a. (U) General: Support as outlined in AFM 11-4 must be provided at operational locations for the HH-43 Detachments and the HH-16 deployed aircraft.

b. Priority: Logistical support for the operation will require a precedence rating of 1-4. Furthermore, priority air resupply will be required for the first six months of operation. Authorization of four additional mission support kits will be required to provide increased logistical support at operating locations.

c. Maintenance: Maintenance will be conducted in accordance with existing phase concept.

9. (S) Manpower and Organization (Reference Tab F):

a. In addition to the manpower now authorized in Det 3, Pacific Air Rescue Center, 51 officers and 135 airmen will be required. This includes the organization of four helicopter detachments with a 1.5:1 aircrew ratio, augmentation of the JHAC, and a rescue operational

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...approximately 30 officers and 100 enlisted men. This will be made available from current inventory. This is very different of 10 officers and 50 men.

5. Four helicopter detachment will be assigned to the Pacific Air Rescue Center. Operations control will be vested in the Air Division and will be exercised through Detachment 3, Pacific Air Rescue Center (JFAC). HU-16B aircraft will be employed from existing Air units (31st and 33d Air Rescue Squadrons), and will be under the operational control of Detachment 3, Pacific Air Rescue Center (JFAC).

10. (c) Personnel (Reference Tab C): Personnel in support of the helicopter operation should be drawn from Air Force-wide resources. Personnel should be assigned PDI and action taken to expedite the deployment on a priority basis. Personnel not possess sufficient officers and airmen in the skills required to support the entire requirement without severe impairment of the COMUSMACV. The personnel requirement, when drawn from equities from Air Force-wide, will result in sufficient number of the qualified personnel being withdrawn to provide a personnel strength of highly qualified professionals in the mid-level area.

11. (1) Attrition: An attrition report must be submitted to the JFAC environment. Although an attrition report will be available for this type of operation, the JFAC will be required to submit justification for the attrition. Personnel from the JFAC will be included in the attrition report with the aircraft. Personnel in order that replacement unit strength be maintained and immediate availability will be assured.

12. (c) Conclusion: The immediate requirement for professional rescue forces in the JFAC to support the urgent combat situation can be satisfied by the employment of the current helicopter inventory. The HU-16B is the most capable helicopter in the JFAC inventory. With modifications, it will be capable of fulfilling the urgent requirement. Therefore, it is requested that:

a. This proposal be approved.

b. Required modifications on twenty-two HU-16B helicopters be made at Kennel Aircraft Corporation, as follows:

(1) Install self-sealing fuel tanks to increase an extension of life span.

(2) Install HU-16 attitude indicator (or equivalent).

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(3) Install modified hoist winch to accommodate a 400 to 500 foot cable.

(4) Install modified blade flaps capable of withstanding flight in heavy precipitation.

(5) Install flat curtains.

c. The remaining HH-43B helicopters under production contract at Hovon Aircraft Corporation, with scheduled delivery to ARN by 1 April 1964, be programmed for the above modifications and subsequent assignment to this mission.

d. Additional HH-43B helicopters from ARN resources be programmed, as directed by USAF, for the above modifications and subsequent assignment to this mission.

e. Prompt action be taken by Headquarters USAF to accomplish the reallocation of HH-43B resources necessitated by the above actions.

f. A precedence rating of 1-X be assigned for logistical support.

g. Authorization be granted for four additional mission support kits (MSK) for HH-43B helicopters.

h. Organizational actions be effected within four months following approval of this proposal, and that manpower allocations be programmed so as to provide total resources concurrently with completed organizational actions.

i. Action be taken to assure PCS assignment and deployment of personnel on a priority basis.

13. **Classification:** This document is classified Secret in order to uphold the classification previously assigned by Headquarters PACAF to this subject.

ARMON E. WILLIAMS
Brigadier General, USAF
Commander

7 Atch

1. TAB A. Concept of Operations
2. TAB B. HH-43B Combat Capability / Limitations
3. TAB C. Operations and Training
4. TAB D. Avionics Requirements

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- 5. TAB E. Logistics
- 6. TAB F. Manpower and Organization
- 7. TAB G. Personnel

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Tab A

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(U) CONCEPT OF OPERATIONS

1. (S) The primary mission of HH-43B helicopter Combat Aircrew Rescue/Recovery forces will be directed and coordinated by Joint Search and Rescue Center (JSARC), and responsive to 2d Air Division operational control. The secondary mission will be aircraft fire suppression within close proximity of the assigned base of operations, and will be by direction of the detachment commander in accordance with procedures established by coordination with JSARC. These forces will be used solely for the primary and secondary missions. Helicopter detachments will operate with four HH-43B helicopters from each of the following bases in RVN: Bien Hoa, Can Tho, Da Nang, and Pleiku, with six additional modified helicopters assigned to AHS for command support. Flying hours will be programmed at the rate of thirty hours per month per helicopter. Helicopters will normally be dispatched in pairs, one to act as cover and backup for the other. As this operation will be under field conditions with limited supply and maintenance support, an in-commission rate of 50 per cent is anticipated. Therefore, the assignment of four helicopters to each operating location is mandatory. The detachments will provide capability of prompt recovery of downed aircrew personnel involved in aircraft accidents, incidents, or similar occurrences within operating limits of the helicopters, but will not be used for extended pattern search activities. These forces will be deployed with fighter cover. Helicopters deployed to RVN will be modified and equipped with limited hand-held defensive firepower, protective armor, and provisions for range extension. AHS aircrew members will be trained and equipped for Combat Aircrew Rescue/Recovery operations. Pararescue personnel and helicopter flight mechanics will be trained and used as firefighters in order to preclude reassignment of additional personnel qualified only as firefighters.

2. (S) AHS will provide three HU-16 aircraft at Nha Trang Air Base, under the operational control of JSARC, to provide area search and on-scene commander capabilities over land areas for combat rescue/recovery operations. Over water areas these forces will provide low level visual and electronic search, pararescue capability, and retrieval of downed aircrews by water landings.

3. (U) SAR, communications, and authentication procedures will apply as provided by Joint Regulations: AFR 55-7, AR 525-60, SUPP, RVP 37(A), (U) Maritime Search and Rescue (SAR) Procedures.

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(S) HH-43 COMBAT CAPABILITY/LIMITATION

1. (U) Rotor System. The blade itself does not appear to be more vulnerable than any other helicopter blade. The rotor head appears average compared to other helicopters for withstanding battle damage. Blade flaps and controls leading to them are vulnerable to battle damage, but the control rods are made of steel and no protection for either is possible. Erosion of blade flaps in rain is a problem, however, a new flap leading edge cover made of polyurethane is being tested and promises to alleviate this problem.

2. (S) Fuel System.

a. Self-sealing fuel tanks are necessary to prevent fire hazard and fuel loss when struck by enemy fire or penetration by sharp objects when landing on unprepared fields. Since range is critical, any additional loss of fuel would jeopardize the mission, air ref, and drop. Self-sealing tanks, capable of withstanding 30 caliber fire and interchangeable with those presently in the HH-43B, will be available in 12 weeks from the time the contract is let. No increase in basic weight results due to a loss of approximately four gallons of fuel and a gain of approximately 26 pounds in tank weight.

b. The present radius of action of the HH-43B is 61 nautical miles. Radii of action from the proposed base bases are shown by the inner green circles on the attached map. (Atch 1.) To completely cover all areas requires range extension. There are no auxiliary fuel tanks available at this time. A requirement exists for external drop tanks. However, pending development of such tanks, an interim 150 gallon tank in the cabin is acceptable. A self-sealing tank of this design weighing 50 pounds and gravity feeding to the main tanks can be made available by Roman Aircraft Corporation within 10 weeks of contract approval. The entire 150 gallons of fuel will be more than double the present range of the HH-43B and provide greater flexibility of operation. The larger circles on the map (Atch 1), represent the range of the HH-43B with range extension.

c. Assuming that JP-4 fuel is made available at all locations indicated on the map (Atch 1), most of Viet Nam could be covered by staging the HH-43B. Areas that cannot be covered by this method are marked by crosses on the map. Locations which now have JP-4 fuel are marked by a cross. This method of range extension is less desirable than the use of auxiliary tanks due to the nature of the mission in which the time element is of paramount importance. The use of staging locations for refueling would also increase exposure of helicopters to

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ground fire as well as present army problems associated with maintaining adequate undisturbed fuel supplies.

3. (U) Instrument Capability. The HH-43B possesses a limited instrument flight capability and can be used for unavoidable instrument flights not to exceed 30 minutes actual weather due to pilot fatigue. Recent adverse weather tests conducted by ASD, Wright-Patterson AFB, Ohio, disclosed the need for the 100-4 attitude indicator (or equivalent) to be installed in the HH-43B. (Reference ASD-TOW-62-454 Project Number 214/3770, Adverse Weather Tests of the HH-43B). This installation is a mandatory modification.

4. (U) Winch Cable. Due to the height of the trees in some areas of the RVN, a minimum of 300 feet of hoist cable is required with 250 feet desirable. Present cable length is 100 feet. Kaman Aircraft Corporation advised that a reel and cable of this capacity are available.

5. (U) HH-43B Airspeed. This aircraft's red line airspeed is 105 knots. Motor induced vibration levels are excessive at maximum airspeeds for all gross weights, altitudes, and rotor speeds. The aircraft's relatively low airspeed is a limiting factor in this mission.

6. (N) Personnel Protection.

a. Flak curtains and body armor will be used with better protection can be procured. Kaman Aircraft Corporation is developing a capsule seat to protect helicopter pilots; however, this program is in months away.

b. An Armalite rifle and a .38 caliber revolver will be carried by each crew member in order to provide defensive firepower if required.

c. Survival kits designed for this area can be procured locally at Tan Son Nhut.

d. Crew members' hard hats will be painted OD color and the fatigue uniform worn in lieu of the flying suit.

e. Parachutes will be worn with extras carried aboard the helicopter for use by recovered aircrews.

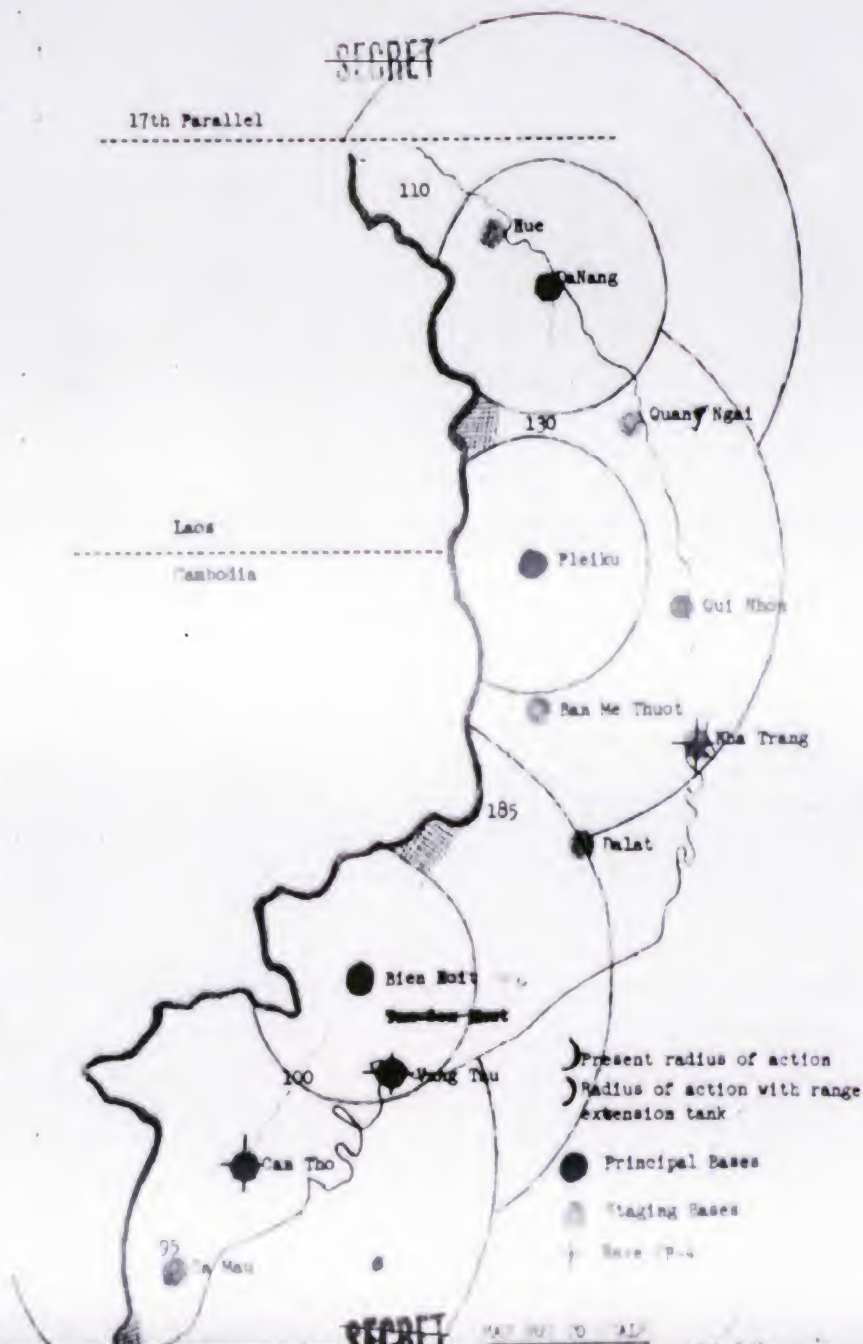
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Tab C

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(U) OPERATIONS AND TRAINING

1. (S) HH-43 Helicopter Operations.

a. Primary mission is aircrew recovery. The following factors are necessary for mission accomplishment.

(1) Helicopter flight crew will be composed of two pilots, one helicopter flight mechanic and one pararescueman.

(2) The helicopters will be dispatched in pairs whenever possible, one to act as cover and backup for the other.

(3) The helicopters will be dispatched only to predetermined crash and/or survivor sites. The helicopter will not engage in extended pattern searches.

(4) The helicopters will normally fly at a minimum altitude of 1500 feet above the ground when going to and from a recovery site. An altitude of 2500 feet above the ground will be flown when .50 caliber enemy fire is expected. If .50 caliber fire is expected an altitude of 5000 feet will be flown.

(5) Every effort to contact and identify survivors will be made prior to attempting a pickup.

(6) Spiral, high speed approaches to recovery locations will be made. Unprepared landing areas may be staked with bamboo or steel rods to hinder/prevent helicopter operations, and appropriate precautionary measures will be taken. Hovering and/or moving pickups will be made when possible to expedite departure. Departures will consist of climbing turns at high rates of climb to desired altitude. Evasive action will be taken as required and no climbouts on course will be made.

(7) HHCAP will be required for protection of the helicopter.

(8) Rear doors of the helicopters will be removed to permit rapid entry of rescues.

(9) If one helicopter is forced down, the accompanying helicopter will be used to rescue the aircrew in distress; if this is not possible, the crew members should escape from the area immediately, taking survival gear and heading toward the nearest known friendly area.

TAB C

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(10) Traffic patterns will be irregular to avoid a predictable pattern and will not be started at less than 1500 feet altitude.

b. HH-43B Secondary Mission.

(1) The capability of the HH-43B to suppress aircraft fires will be utilized when friendly aircraft have crashed on or in the immediate vicinity of the assigned air base. HH-43B helicopters will respond in pairs when a crash has occurred off base even though the distance will be short.

(2) One HH-43B will be configured for the secondary mission and the other will fly backup for the one effecting the fire suppression/rescue. The helicopter performing the secondary mission will not carry range extension fuel but will deploy with the fire suppression kit (FSK). Helicopter detachment commanders will scramble the helicopters for the secondary mission in accordance with procedures established in coordination with the JFAC.

c. Night operations of helicopter forces will be limited due to increased vulnerability of the helicopters to ground fire and obstructive tactics, in addition to the hazards normally restricting such operations.

d. (X) HH-16 Aircraft Operations.

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a. Aircrew recovery operations by HH-16 aircraft will be similar to the rescue activities performed in Korea. Some changes will be necessary due to differences in the type of terrain and hostile action to be encountered. HH-16 aircraft will provide medium level electronic search over land areas and low level search and recovery over water areas to include inland bodies of water when known to be deep enough and large enough to accommodate HH-16 aircraft. Medium level altitudes over land are defined as 4,000 feet above the ground and based on the following assumptions:

(1) That enemy ground-to-air firepower will be mainly small arms automatic fire.

(2) That most downed aircrew members will have radio or homing beacon capability.

HH-16 aircraft will then be able to quickly and safely scan any area of high probability for survivors' signals, and when located, guide other rescue vehicles to the scene for the actual recovery. If the search area is over water, the HH-16 aircraft will be capable of low level visual and electronic search, actual water landings, aircrew

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recovery, and return. If the survivors are on a beach, the aircraft will be capable of landing on the water, then beaching or taxiing near enough to shore to allow the survivor(s) to swim to the HU-16. If sea and wind conditions do not permit a water landing, the MA-1 kit will be delivered. If the survivors are injured and cannot reach the MA-1 kit, pararescue personnel will be deployed to assist them. The HU-16 will then orbit overhead and guide other rescue vehicles to the scene for the actual recovery. Night water operations and recovery are not contemplated, although night electronic search operations may be conducted if deemed practical.

b. Aircraft and Aircrew Assignment. The 134 Air Rescue Squadron will provide two HU-16 aircraft with aircrews and the 11st Air Rescue Squadron will provide ops. Each aircrew will include two pararescuemen. Maintenance, avionics, and sheet metal support personnel, as required, will also be supplied by each unit. HU-16 personnel will be deployed on 30-day rotational tours.

c. Aircraft Modification/Changes. The following actions are recommended although they are not mandatory prerequisites for HU-16 aircraft.

(1) Armament: Aircrew members should be provided with Armalite rifles and .35 caliber weapons for protection.

(2) Body armor and flak curtains are required.

(3) Aircraft markings: Camouflage painting is not required, but elimination of the yellow Rescue markings is recommended.

3. (3) Training. Air Rescue personnel are currently maintaining a high degree of proficiency in the weapon systems to which they are assigned. Training will be required for the combat rescue/recovery mission and to physically and psychologically prepare ARS personnel for combat operations. In addition, helicopter flight mechanics and pararescue personnel assigned to RVN helicopter units will be used as firefighters and will require complete training in Fire Suppression Kit (FSK) operation.

a. Planning Data:

(1) Only fully qualified ARS aircrews will be utilized.

(2) All helicopter pilots will be MCC qualified.

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(3) An aircrew will consist of:

| | |
|---------------------|---------------------|
| HH-43B | HH-16 |
| Pilots (2) | Pilots (2) |
| Flight Mechanic (1) | Navigator (1) |
| Pararescue (1) | Flight Mechanic (1) |
| | Radio Operator (1) |
| | Pararescue (2) |

(4) HH helicopter detachments will perform both aircrew rescue/recovery and fire suppression missions.

(5) HH-16 aircraft will perform as search aircraft and accomplish water recovery missions as well as provide on-scene commander's responsibilities.

b. Combat Aircrew Training. Helicopter personnel will receive combat rescue/recovery training as in-unit training. This training will be conducted by ARS helicopter personnel who have had the most experience in this type of operation. Subjects to be taught are:

- (1) Combat mission flight planning.
- (2) Evasive flight to avoid ground fire.
- (3) Flying procedures for mountain operations.
- (4) Hoist operations from 250 foot elevation.
- (5) Landing site evaluation with rapid and evasive approaches and departures.
- (6) Combat operational takeoffs and landings with various gross weights.
- (7) Tactical flight procedures for helicopters operating in pairs.
- (8) Instrument flying to include both hooded flight and flight under DE.
- (9) Communications (AFR 55-7).

Helicopter flight mechanics and pararescue personnel assigned to HH units will perform an additional role as firefighters. The flight

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mechanics will receive F&X training as in-unit training and the pararescue personnel will attend the F&X portion of the 1041004 course at Stead AFB, Nevada. Pararescue personnel will also receive HH-43B familiarization flights and operational F&X training at COMUS LBN units.

HH-16 aircraft will not require special combat aircrew flight training. However, extensive training in water maneuvers such as water taxiing and beaching operations will be required. This training will be accomplished as in-unit training.

c. General Military Training. General Military Training will be required to prepare A&C personnel for combat operations and will be conducted by pararescue personnel at helicopter units identified to support this plan. Pararescue personnel will conduct this training while they themselves are receiving HH-43B flight familiarization. Subjects to be taught are:

- (1) Physical conditioning (daily supervised periods).
- (2) Code of Conduct.
- (3) Health and military sanitation.
- (4) First Aid.
- (5) Security.
- (6) Survival (an Air Division will be tasked to provide Escape and Evasion Training in the theater of operation).
- (7) Small arms (host bases will provide firing ranges and equipment as required).

d. Supporting Personnel. Helicopter pilots must be basic H-43 qualified (10350). Support personnel should be qualified on this type of equipment. All personnel will receive complete A&C qualification and proficiency training, as well as the above combat and general military training, at COMUS LBN units.

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Tab D

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(1) Avionics requirements for ~~SECRET~~ HU-16 Air Operations in Vietnam

1.0 INTRODUCTION

1. (1) The Aeronautical Communications environment for tower, ART, and ARTC in Vietnam consist of (HF) (225 to 400 mc AM), (VHF) (108 to 157.9 mc AM), (LF) (2 to 30 mc AM).
2. (1) Army field communications are HF (21.0 to 51.9 mc AM).
3. (1) The airways structure in Vietnam is based entirely on low frequency beacons, and the majority of terminal navigation aids are low frequency beacons.
4. (1) Four terminal TACAN stations and one VOR station are located in Vietnam as follows:

| | |
|-------------|-------|
| a. SAIGON | TACAN |
| b. CAM THU | TACAN |
| c. TAYNAT | TACAN |
| d. CHU BINH | TACAN |
| e. TAN SON | VOR |

5. (1) The standard HU-16 avionics configuration consists of:
 - a. AN/ARC-36 VHF Transceiver, 225 to 400 mc AM.
 - b. AN/ARC-25 HF/AM, 225 to 400 mc AM.
 - c. AN/ARN-59 Radio Compass, 190 to 1750 kc's.
6. (1) The standard HU-16 avionics configuration consists of:
 - a. AN/ARC-27 VHF Transceiver, 225 to 400 mc AM.
 - b. VHF-101 Transceiver, 108 to 159.9 mc AM.
 - c. 618T-2 HF Transceiver, 2 to 30 mc, AM, USB, CW.
 - d. AN/ARC-8, 1700 kc to 18 mc.
 - e. AN/ARN-11 Radio Compass.
 - f. AN/ARN-11 DPMI Range Receiver.

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- k. AN/ARN-21 VHF AN receiver.
- h. AN/ARN-18 and ARN-18 ILS system.
- i. AN/ARN-12 Marker Beacon.
- j. AN/APL-25 IFF Transponder.
- k. AN/ARN-9 LORAN A.
- l. AN/APL-28 IFF Interrogator.
- m. AN/ARN-31 Navigation Radar.
- n. SARAH receiver.

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DISCUSSION:

- 7. (S) Basic Aeronautical Communications in Vietnam is VHF (108 to 157.9 mc AM). UHF (225 to 400 mc) is employed to satisfy US Military requirements, and not all airfields have a capability on UHF. Any aircraft operating in Vietnam without UHF will be severely limited in communications.
- 8. (S) HF (2 to 30 mc) Communications is employed for long range ATC Communications and would not be a factor in helicopter operations. HU-16 aircraft are equipped for the HF environment.
- 9. (S) VHF/FM (20.0 to 51.9 mc) is the Communications mode for Army ground forces and supporting aircraft. Lack of VHF/FM would eliminate any capability to communicate with Army ground forces during recovery operations.
- 10. (S) Air Force action to procure the AN-21 Personal Locator Beacon should see the AN-21 become the aircrew Personal Locator Beacon during calendar year 1965. The AN-21 is compatible with the UHF communications and AN-25 UHF/ATF systems in the HU-16 and HH-43B.
- 11. (S) The standard Air Force AN-11 and follow-on AN-10 Emergency Radios are compatible with the UHF communications systems in the HU-16 and HH-43B.
- 12. (S) As indicated in para 6, HU-16 aircraft are equipped to receive the SARAH personal locator beacon, but equipment is supported by RUSA. A few SARAH installations have been made in HH-43B's in the PACAF area, under the auspices of PACAF, but it is not an Air Force accepted system, and is not supportable thru Air Force Supply Channels. The Air Force Personal Locator Beacon program is predicated on the AN-21 beacon operating against standard HF communications receivers and HF/ATF systems.

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13. (S) In order to make HU-16 and HH-43B aircraft compatible with the communications environment in Vietnam, VHF/AM and VHF/FM equipment is required to be installed in the HH-43B and VHF/FM to be installed in HU-16.

14. (X) Engineering for VHF/AM (20-101) has been completed on the HH-43B. No installation engineering on VHF/FM for either the HU-16 or HH-43B has been accomplished but would not pose any particular problem.

15. (S) The HH-43 is not equipped with IFF. Tactical requirements for IFF in helicopter operations in Vietnam are not known at this writing.

CONCLUSIONS:

16. (X) In order for the HH-43B to perform an unrestricted combat recovery mission in Vietnam, it must be modified with VHF/AM, and VHF/FM.

17. (X) In order for the HU-16 to perform an unrestricted combat recovery mission in Vietnam, it must be modified with VHF/FM.

18. (N) Installation of IFF in HH-43B should be predicated on tactical requirements.

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(U) MATERIEL TAB

1. (U) GENERAL. This tab contains general guidelines of the Materiel Functions.
2. (U) ASSUMPTIONS. Logistic support at the forward operating locations specified in the basic plan will be limited.
 - a. (U) Quarters and messing facilities will be available and provided by existing host military element.
 - b. (U) Limited field maintenance and related AG support will be available.
 - c. (U) Aircraft spares support will be provided from the mission support kit (MSK) for F-438 aircraft, and the Nuclear Air Transportable Kit (NATK) for F-16B aircraft, with re-supply from Clark AB, as required.
 - d. (U) POL and adequate fuel dispensing facilities will be made available at each designated operating location (Ref basic plan).
 - (1) F-438 - AWCAS - JP-4, 011 7808.
 - (2) F-16B - AWCAS - 115/145 011, 1100.
 - e. (U) All materiel storage facilities are inadequate. Outside storage conditions will prevail in most instances. (Tents will most likely be the only storage shelter available).
 - f. (U) Main resupply point will be designated as Clark AB, P85250.
 - g. (U) Two supply airmen, AFSC 64650, will be assigned to each helicopter operating location. Two supply positions (AFSC 64670) will be located at Ton Son Nhat and Clark AB, respectively, as mission liaison representatives.
3. (U) TASKS.
 - a. (U) In ARS, DCS/Materiel will:
 - (1) (U) Initiate action through MATS for authorization to assemble four Mission Support Kits in support of basic plan and normal ARS deployment contingencies. Mission Support Kits currently assembled and positioned at Eastern ARC, Central ARC, Western ARC and 33 ARescue Sq, will be used to satisfy immediate deployment requirements. Increased MSK authorizations are required for assembly of replacement kits at Eastern ARC, Central ARC, Western ARC and 33 ARescue Sq.

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(2) (U) Initiate action through MATS for authorization to release ARS assets stocked by the host base at Clark and Asia AB on an as required basis. Controlling agency will be in ARS Supply Division (ARMSD-1).

(3) (U) Initiate action through MATS for increased R-1820-760 and T-53-L-18 engine stockage objectives at Clark AB.

(4) (U) Negotiate with MATS and applicable support system managers for increased spares stockage objectives at Clark AB and positioning of selected items at the operating locations.

(5) (U) Coordinate with PACAF, Pac Air Rescue Com and Clark AB on procedures for:

(a) (U) Resupply of host base stockage objectives, Mission Support Kits and Nuclear Air Transportable mobility kit requirements.

(b) (U) ARS reporting procedures.

(c) (U) Establishment and utilization of a Mission Liaison Function at Clark AB and Tan Son Nhut.

(d) (U) Providing priority bench check and repair of Rep/iten generations from the operating locations within command in-house capability at Clark AB.

(e) (U) Coordinate with MATS, Support System Managers and host base supply agency for release and shipment of all H-438 spares to Clark AB for augmentation of base supply stocks. (See Appendix I).

b. (U) In MATS will:

(1) (U) Initiate action to obtain increased authorization of four Mission Support Kits in support of H-438 requirements in basic plan.

(2) (U) Coordinate with MATS for increased R-1820-760 and T-53-L-18 engine stockage objectives at Clark AB.

(3) (U) Initiate action to obtain appropriate Unit Precedence Rating in support of this deployment. Precedence rating entitling use of Force Activity Designator 1 is required to insure positive and effective support.

c. (U) The Mission Liaison supply representatives at Clark AB will:

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(1) (U) Coordinate and monitor all logistic support requirements for the forward operating locations.

(2) (U) Assist the host base in achieving maximum use of lateral support.

(3) (U) Direct requests to ARS (ARMSP-1) for release of ARS base stocked assets at Clark AB and Jaba AB.

d. (S) The ARS Mission Supply Representatives located at Ton Son Nhut AB, Viet-Nam, will:

(1) (U) Review and monitor all AGI and spares requirements at each operating location and report requirements to mission liaison representative at Clark AB by fastest available communication.

(2) (S) Monitor shipment of HU-16L and HU-43B AGI and spares requirements through the terminal transportation facility at Ton Son Nhut.

e. (U) Operation Location.

(1) (U) There will be two supply specialists (AFSC 61650) assigned at each helicopter operating location, who will be responsible for the following:

(a) (U) Maintenance of the HU-43B MSK in accordance with MATS Manual 67-3 and ARS Reg. 67-1.

(b) (U) Maintain custodial responsibility for AGI items as required by 2d Air Div and 13th AF.

(c) (U) Request replacement items for MSK and other immediate requirements from the appointed support activity.

(d) (U) Maintain adequate records of items consumed for the purpose of making periodic recommendations for additions and deletions to the HU-43B MSK.

(2) (U) One spare T-53-L-11 engine, OEC kit and ship set of HU-43B blades will be maintained at each operating location in addition to those items contained in the HU-43B MSK. The T-53-L-11 engine will be removed from can and built-up with OEC kit only if adequate inside storage is available.

(3) (S) One HU-43B transmission will be prepositioned and maintained at both Bien-Hoa and Da-Nang.

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(4) (U) Special logistic requirements applicable to support HH-43B and HU-16B aircraft are contained in Appendixes I and II respectively.

f. (U) Squadrons providing pararescuemen will:

- (1) (U) Provide required equipment.
- (2) (U) Provide limited stock of medical supplies.

g. (U) Maintenance

(1) (U) Detachment will:

- (a) (U) Deploy with all assigned A/C.
- (b) (U) Deploy with complete set of special tools for assigned aircraft.
- (c) (U) Insure all mechanics deployed have complete set of hand tools in their possession.
- (d) (U) Deploy with applicable file of technical publications.
- (e) (U) Disassemble and prepare aircraft for shipment as required by applicable dash nine Technical Order.
- (f) (U) Insure the fuel tanks are purged as outlined in T.O. 1-1-3.
- (g) (U) Perform maintenance on assigned HH-43B helicopters under existing phase inspection concept and in accordance with current publications.

(2) (U) Maintenance Manning Support Required of Host Bases:

The host base must make available at all times, the necessary maintenance specialists required to support this operation. Support to be provided in accordance with AFR 11-4 Host/Tenant Agreement is as listed below:

| FC | Function | Duty Position | A/C |
|------|-------------|---------------|-------|
| 2310 | Fabrication | Airframe Rpm | 534X0 |
| 2333 | Elec Sys | Elec Rpm | 423X0 |
| 2335 | Inst Sys | Inst Rpm | 422X0 |
| 2411 | Radio | Radio Rpm | 501X0 |

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(U) ANNEX 1

(U) 101-430 SUPPORT

1. (U) TASKS:

(U) Air Rescue Centers, 31/33 ARSocue Sq will:

(1) (U) Transfer their 101-430 ARS mission support kits to the new operating locations as follows:

- (a) (F) Eastern ARC MSA now located at Robins to Bien Hoa.
- (b) (A) Western ARC MSA now located at Luke AFB to Da-Nang.
- (c) (A) Central ARC MSA now located at Perrin AFB to Pleiku.
- (d) (A) 33 ARSocue Sq MSA now located at Nha to Can-Tho.

(2) (U) Air Rescue Centers and 33 ARSocue Sq will insure that 101-430 MSA are 100% complete at time of transfer. MSA from the 2,1, will be transferred concurrently with 101-430 acft or special airlift.

(3) (U) After deployment of the 101-430 MSA, the 2,1, Centers will initiate actions to assemble another MSA as authorized to support other contingency operations that may arise.

(4) (U) Air Rescue Centers will insure transfer with the aircraft full existing bench stocks from locations transferring complete LRR activities.

(5) (U) Air Rescue Centers, in conjunction with the ARS Liaison Office at MAJMA, will obtain and replace all time change components requiring change within the next 150 flying hours prior to transfer of aircraft.

(6) (U) Provide LRRs transferring aircraft with blade, empennage and pylon containers required to airlift the 101-430 aircraft immediately after designation of aircraft to be transferred. ARSocue will provide required airlift of these items from current locations to bases transferring aircraft.

(7) (U) Air Rescue Center supply personnel will provide on-the-spot supervision during the preparation for shipment of MSA, LRR, AC, base stocks and bench stocks. Assistance will continue during loading of aircraft and other items.

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ANNEX 1

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2. (U) LEAVE LIST BASE TAKEN:

a. (U) Host base BMOs from which complete LBR detachment activities are transferred will transfer all common and peculiar items required in support of 18-438 aircraft at the new location. This will include common items required such as air compressor and generator sets, that may not appear on the LBR unit's L-AD. Shipping documents will be accomplished on all AGI items reflecting 405 Ftr Sq, WFO 5250, as the receiving activity. AGI items will be transferred concurrently with the 18-438 aircraft on the same special airlift aircraft.

b. (U) Two of the host base supply officers supporting the movement of complete LBR units, as designated in the basic plan, will transfer all 18-438 base stockage spares to the BANS at the 405 Ftr Sq, WFO 5250. The items will be identified through use of the 18-438 support system Materiel Control List (MCL), dated 28 Oct 63, published by MAAMA. Quantities as indicated on the MCL of both common and peculiar items will be transferred, if available. Method of shipment will be by special air lift, air lift provided for movement of 18-438 aircraft or via fastest means available through channel traffic. Specific guidance will be provided at a later date.

c. (U) All host bases from which personnel are transferred will provide departing personnel with required side arms and field equipment.

3. (U) MAAMA TAKEN:

a. (U) Authorize and provide, immediately upon notification from 18 ARS, the following 18-438 spares at indicated locations:

(1) (U) One ship set of 18-438 blades at:

(a) (X) Dien-Nga

(b) (X) Da-Nang

(c) (X) Pleiku

(d) (X) Can-Tho

(e) (X) One additional ship set at Clark AB

(2) (U) One 18-438 transmission at:

(a) (X) Dien-Nga

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- (b) (S) Un-~~_____~~
- (c) (S) One additional transmission at Clark AB.
- (3) (S) Two additional ship sets of 101-430 hubs at Clark AB.
- (4) (S) Two additional ship sets of 101-430 Shafts & housings at Clark AB.
- (5) (S) Two additional Azimuths at Clark AB.
- (6) (S) Two additional 101-430 Transmission Oil Pumps at Clark AB.
- b. (U) Upon receipt of revised flying hour program, make re-computations for all spares requirements and initiate immediate additional procurement to support the additional flying hours and dispersal of assets. Notify item control officers at Other AOs supporting the 101-430 to initiate similar actions.
- c. (U) Provide the two losing bases not transferring spares to Clark AB with disposition instructions for all 101-430 spares in stock.

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(U) APPENDIX II

(U) HU-16E SUPPORT

1. (U) GENERAL. HU-16E aircraft will be selected and deployed from units in accordance with basic plan.
2. (U) TASKS:
 - a. (U) The 31st and 33rd Arescue Sq's will each provide one-half NTK (one each mobility type kit) for deployment to the operating location.
 - b. (U) The 31st Arescue Sq, through coordination with the host base, will:
 - (1) (U) Provide Special Tools and AGE at the operating location on an as-required basis.
 - (2) (U) Provide field maintenance engine and propeller specialists to the operating location as required.
 - (3) (U) Provide initial bench stock requirements of crewman hardware at the forward operating location.
 - c. (U) The host base at Clark AB will:
 - (U) Provide an R-1820-760 engine and a 43-0-50 propeller in built-up "ready to go" condition for immediate deployment as required.

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APPENDIX II

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MANPOWER AND ORGANIZATION (U)

1. (S) OBJECTIVE: To provide effective and timely manpower and organization support for the organization of helicopter detachments and rotational deployment of fixed wing aircraft in the Republic of Viet Nam.

2. (S) ASSUMPTIONS:

a. (S) There is a requirement for permanent HH-43 helicopter detachments in support of air rescue requirements in the Republic of Viet Nam.

b. (S) There is a requirement for rotational deployment of HU-16B aircraft in support of air rescue requirements in the Republic of Viet Nam.

c. (U) Essential modification of HH-43 aircraft will take four months.

d. (S) Field maintenance support will be provided by the host bases, under the provision of AFR 11-4.

e. (S) Operational control will be vested in 2nd Air Division with further delegation of responsibilities to Detachment 9, PARC (JSARC).

f. (U) Flying hour utilization for HH-43 aircraft will be 40 hours per month per aircraft.

g. (U) All support for HU-16B rotational forces will come from within current ARS resources.

h. (S) USAF/MATS will approve a Program Change Proposal for the organization of Helicopter Detachments.

3. (U) FACTORS:

a. The current Maintenance Manhour Factor applied to ARS HH-43 aircraft is adequate.

b. The crew composition will be two Pilots, one Flight Mechanic and one Pararescueman.

c. The crew ratio will be 1.5:1.

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4. (S) MANPOWER REQUIREMENTS FOR ARS MISSION IN REPUBLIC OF VIET NAM:

a. Detachment 1st, PARC (JSARC), Saigon Cholon, Republic of Viet Nam.

| <u>FC</u> | <u>Duty Position</u> | <u>AFSC</u> | <u>GRADE</u> | <u>Current Auth</u> | <u>Required Auth</u> | <u>Difference</u> |
|---------------------------------|----------------------|-------------|--------------|-------------------------|--------------------------|-------------------|
| 100A AIRCRAFT OPERATIONS | | | | | | |
| | Commander | 1416 | LTC | | 1 | +1 |
| | Cpn Staff Off | 1416 | MAJ | 1 | 1 | |
| | Air Op Off | 1436H | CP1 | 2 | 4 | +2 |
| | Cmd Post Tech | 27470 | MSG | | 1 | +1 |
| | Cmd Post Tech | 27470 | TSG | 1 | 1 | |
| | Cmd Post Spec | 27420 | MSG | 1 | 3 | +2 |
| | Admin Spec | 70250 | A1C | <u>1</u> | <u>1</u> | |
| | TOTAL | | | 6 | 12 | +6 |

b. Manpower authorizations required for each helicopter detachment.

| <u>FC</u> | <u>Duty Position</u> | <u>AFSC</u> | <u>GRADE</u> | <u>Required Auth</u> | <u>Tot Req Equals Unit Req Mult by Four Units</u> |
|----------------------------------|----------------------|-------------|--------------|--------------------------|---|
| 2200 AIRCRAFT MAINTENANCE | | | | | |
| | Ael Maint Sup | 43180 | SMS | +1 | +4 |
| | Hel Tech | 43170 | MSG | +1 | +4 |
| | Hel Tech | 43170 | TSG | +2 | +8 |
| | Hel Mech | 43150 | MSG | +3 | +20 |
| | Hel Mech | 43150 | A1C | +3 | +20 |
| | Admin Spec | 70250 | MSG | <u>+1</u> | <u>+4</u> |
| | | | | +15 | (X 4) +60 |

2310 JET ENGINE MAINTENANCE

| | | | | | |
|--|--------------|-------|-----|-----------|-----------|
| | Jet Eng Mech | 43250 | MSG | +1 | +4 |
| | Jet Eng Mech | 43250 | A1C | <u>+1</u> | <u>+4</u> |
| | | | | +2 | (X 4) +8 |

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| PC | Duty Position | AFSC | GRADE | Required Auth | Tot Req Equals Unit Req Multi by Four Units |
|----|---------------|------|-------|------------------|--|
|----|---------------|------|-------|------------------|--|

1100A AIRCRAFT OPERATIONS

| | | | | |
|---------------|---------|-----|-----|------------|
| Pilot Heli | 1023C | MAJ | +1 | +4 |
| Pilot Heli | 1023C | CPT | +6 | +24 |
| Pilot Heli | 1023C | LT | +5 | +20 |
| Hel Tech | A13170 | TSG | +6 | +24 |
| Res Surv Spec | A92170B | TSG | +1 | +12 |
| Res Surv Spec | A92130B | SSG | +3 | +12 |
| Admin Spec | 70250 | SSG | +1 | +4 |
| | | | +25 | (X 4) +100 |

1100D UNIT SUPPLY

| | | | | |
|--------------|-------|-----|----|----------|
| Org Sup Spec | 64650 | SSG | +1 | +4 |
| Org Sup Spec | 64650 | AIC | +1 | +4 |
| | | | +2 | (X 4) +8 |

c. Supply authorizations required to support the helicopter detachments.

| PC | Function | Duty Position | AFSC | GRADE | Location | Req Auth |
|----------------|-----------------|---------------|------|-------|-----------------------|-------------|
| 1100D UNIT SUP | Org Supply Supv | 64670 | MSG | | Clark AB, PI | 2 |
| | Org Supply Supv | 64670 | TSG | | Tan Son Nhut (RVN) | 2 |

d. Recomp of current manpower authorizations in Det #3, PARC, and those which will become available by withdrawing sixteen HH-43B helicopters from ARS resources (based on a representative sample of four, 3 UE, and two, 2 UE LHR helicopter detachments), authorizations required, and action required differences.

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| <u>Title</u> | <u>GRADE</u> | <u>AFSC</u> | <u>Authorized</u> | <u>Required</u> | <u>Action Required or Difference</u> |
|-----------------|--------------|-------------|-------------------|-----------------|--|
| Commander | LTC | 1416 | 0 | 1 | +1 |
| Pilot | MAJ | 1025C | 0 | 4 | +4 |
| Ops Officer | MAJ | 1416 | 1 | 1 | |
| Pilot | CPT | 1025C | 16 | 24 | +8 |
| Air Ops Off | CPT | 1435H | 2 | 4 | +2 |
| Pilot | LT | 1025C | 17 | 20 | +3 |
| Heli Maint Supt | SMS | 43190 | 6 | 4 | -2 |
| Cmd Post Tech | MSG | 27470 | 0 | 1 | +1 |
| Heli Maint Tech | MSG | 43170 | 0 | 4 | +4 |
| Orgn Sup Supr | MSG | 64670 | 0 | 2 | +2 |
| Cmd Post Tech | TSG | 27470 | 1 | 1 | |
| Heli Maint Tech | TSG | 43170 | 3 | 8 | +5 |
| Heli Flt Mech | TSG | A43170 | 6 | 24 | +18 |
| Orgn Sup Supr | TSG | 64670 | 0 | 2 | +2 |
| Resc Surv Tech | TSG | A92170B | 0 | 12 | +12 |
| Cmd Post Spec | MSG | 27430 | 1 | 3 | +2 |
| Heli Mech | SOG | 43180 | 0 | 20 | +20 |
| Heli Flt Mech | SOG | A43180 | 12 | 0 | -12 |
| Jet Eng Mech | SOG | 43250 | 0 | 1 | +1 |
| Orgn Sup Spec | SOG | 64650 | 0 | 1 | +1 |
| Admin Spec | SOG | 70250 | 0 | 8 | +8 |
| Resc Surv Spec | SOG | A92130B | 0 | 12 | +12 |
| Heli Mech | A1C | 43150 | 0 | 20 | +20 |
| Heli Flt Mech | A1C | A43150 | 16 | 0 | -16 |
| Jet Eng Mech | A1C | A43150 | 0 | 1 | +1 |
| Orgn Sup Spec | A1C | 64640 | 0 | 4 | +4 |
| Admin Spec | A1C | 70260 | 1 | 1 | |
| | | | 94 | 192 | +98 |

RECAP

| | | | |
|-----|----|----|-----|
| LTC | 0 | 1 | +1 |
| MAJ | 1 | 5 | +4 |
| CPT | 16 | 24 | +10 |
| LT | 17 | 20 | +3 |
| SMS | 6 | 4 | -2 |
| MSG | 0 | 7 | +7 |
| TSG | 10 | 47 | +37 |
| SOG | 23 | 51 | +28 |
| A1C | 17 | 29 | +12 |

94 192 +98

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~~SECRET~~

6. (U) MANPOWER SUPPORT REQUIRED OF HOST BASES: The host base must make available at all times the necessary maintenance specialists required to support this operation. Support to be provided in accordance with AFR 11-4 Host/Tenant Agreement is as listed below:

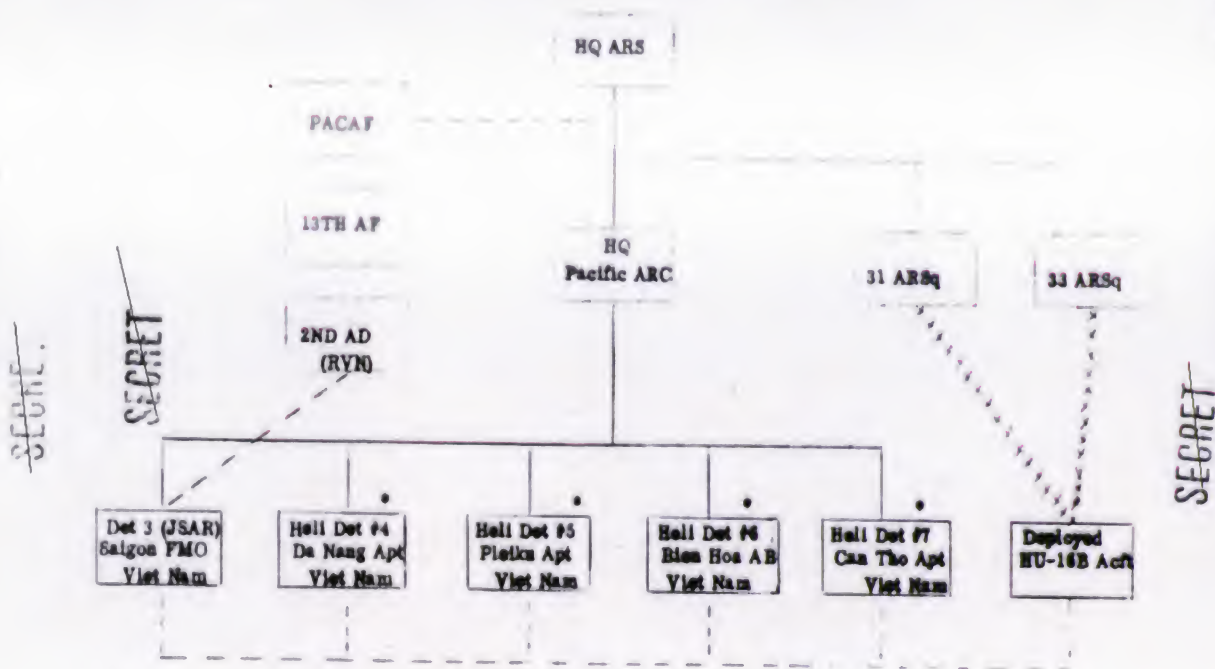
| <u>FC</u> | <u>Function</u> | <u>Duty Position</u> | <u>AFSC</u> |
|-----------|-----------------|----------------------|-------------|
| 2310 | Fabrication | Airframe Rpmn | 531X0 |
| 2335 | Elect Sys | Elec Rpmn | 131X0 |
| 2335 | Inst Sys | Inst Rpmn | 122X0 |
| 2411 | Radio | Radio Rpmn | 301X0 |

7. (S) ORGANIZATION: Four Helicopter Detachments will be assigned to the Pacific Air Rescue Center (PARC). Operational control will be vested in 2nd Air Division with delegation of responsibility to Detachment #3, PARC (JSARC). HU-16B aircraft will be deployed from existing ARS units (11 and 13 ARSq) and under operational control of Detachment #3, PARC (JSARC). The organization is shown on Attachment #1.

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PROPOSED ORGANIZATIONAL STRUCTURE CHART
FOR THE HELICOPTER DETACHMENTS IN RVN



- * Detachment numbers are used to identify detachments if and when permanent detachments are established.
- Operational control
- xxxxx Deployed aircraft

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Tab G

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PERSONNEL

1. Personnel in support of this program should be withdrawn from Air Force-wide resources in quantities, skills and AFSC's identified in the Manpower Tab. Maintenance personnel should have previous experience on HH-43B helicopters.
2. Recognizing that the Air Rescue Service is in possession of skills required to support this program, we can expect to be levied on its numbers sufficient to provide skilled professional Rescue personnel for key positions.
3. Personnel should be selected in accordance with Chapter 2, Part I, AFM 33-11. Special care should be exercised to assure compliance with current policy concerning assignment of personnel to the country concerned. For example, port dates should be established in the first five days of the month, specialized training should be completed prior to arrival at FOK, etc.
4. Units should be exempted from percentage or FTD restrictions and maintained at 100% of the authorized strength. This is particularly sensitive to units having one or two of a particular skill.
5. Personnel should be identified and firmly levied in sufficient time to allow for enroute training.
6. As the end of the initial groups' tour approaches, replacements should be provided in a manner to prevent loss of operational capability or degradation. This can be accomplished by early arrival of replacement personnel.

TAB C

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